

What is claimed is:

1. An input device for an image forming device comprising:

a motor;

a pick mechanism operatively connected to the motor, the pick

5 mechanism positioned to move a media sheet from an input tray;

a first gear set having a first ratio and operatively connecting the motor to the pick mechanism;

a feed nip operatively connected to the motor to receive the media sheet and forward the media sheet along a media path, the feed nip positioned

10 downstream from the pick mechanism a distance less than a length of the media sheet;

a second gear set having a second gear ratio and operatively connecting the motor to the feed nip;

15 the motor operating at a constant speed and driving the pick mechanism at a first speed and the feed nip at a second speed that is different from the first speed.

2. The device of claim 1, wherein the first gear set has a different number of gears than the second gear set.

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3. The device of claim 1, wherein the second gear set includes a swing arm having a first arm and a second arm, the first arm having an even number of gears, and the second arm having an odd number of gears.

25 4. The device of claim 1, wherein the second gear set includes a swing arm having a first gear on a first arm, and a second gear on a second arm, the swing arm is positionable between a first orientation with the first gear in contact with the feed nip and a the second gear distanced from the feed nip, and a second orientation with the first gear distanced from the feed nip and the second gear in

30 contact with the feed nip.

5. The device of claim 4, wherein the swing arm pivots about 10° between the first orientation and the second orientation.

6. The device of claim 4, wherein the first arm and the second arm form an angle  
5 of between about 75-90°.

7. The device of claim 1, further comprising a metering nip positioned  
downstream from the feed nip and operating at a third speed greater than the  
second speed, the feed nip having a clutch to rotate at the third speed when the  
10 media sheet is in contact with both the metering nip and the feed nip.

8. The device of claim 1, further comprising a clutch positioned within the pick  
mechanism that allows the pick roll to rotate at the second speed which is greater  
than the first speed when the media sheet is in contact with both the feed nip and  
15 the pick roll and the motor is operating at a first level.

9. A device for moving a media sheet along a media path of an image forming apparatus comprising:

a motor;

a first roll having a first clutch;

5 a second roll positioned downstream from the first roll along the media path a distance less than a length of the media sheet;

a first gear set operatively connecting the motor to the first roll to drive the first roll at a first speed when the motor operates in a first direction; and

10 a second gear set having a first gear path and a second gear path, the second gear set in a first orientation using the first gear path to operatively connect the motor to the second roll and drive the second roll at a second speed when the motor operates in a first direction;

15 the second gear set being positionable in a second orientation using the second gear path to drive the second roll in a same direction when the motor is driven in a second direction;

the clutch allows the second roll to control the media sheet when the media sheet is in contact with both the first roll and the second roll.

20 10. The device of claim 9, wherein the first gear set and the second gear set are constructed for the first speed and the second speed to be substantially the same when the motor is driven at a constant rate.

25 11. The device of claim 9, wherein the first gear set and the second gear set are constructed for the second speed to be faster than the first speed when the motor is driven at a constant rate.

12. The device of claim 11, wherein the first roll and the second roll rotate at the second speed when the media sheet is in contact with both the first roll and the second roll.

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13. The device of claim 9, wherein the clutch prevents the first gear set from driving the first roll when the motor is driven in the second direction.

14. The device of claim 9, wherein the first roll is a pick roll positioned within an  
5 input tray.

15. An input device for use in an image forming device comprising:

a motor;

a pick mechanism operatively connected to and driven by the motor, the  
10 pick mechanism positioned to move a media sheet from an input tray; and  
a feed nip operatively connected to and driven by the motor to receive the media sheet and forward the media sheet along a media path, the feed nip positioned downstream from the pick mechanism a distance less than a length of the media sheet;

15 the motor simultaneously driving the pick mechanism at a first speed and the feed nip at a second speed that is different from the first speed.

16. The device of claim 15, wherein the pick mechanism comprises a pick arm pivotally positioned within the input tray and having a pick roll on a distal end that  
20 contacts the media sheet, the pick roll being operatively connected to the motor to rotate and move the media sheet from the input tray.

17. The device of claim 15, wherein the feed nip comprises a driven roll operatively contacted by the motor, and a driven roll in contact with the driven  
25 roll.

18. The device of claim 15, further comprising a first gear set positioned between the motor and the feed nip to drive the feed nip in a first direction as the motor operates in a forward direction, and a second gear set positioned between  
30 the motor and the feed nip to drive the feed nip in the first direction when the motor operations in a reverse direction.

19 The device of claim 18 wherein the first gear set includes more gears than the second gear set.

5 20. An input device for an image forming device comprising:

an input tray;

a pick mechanism having a pick arm extending into the input tray and a pick roll positioned at a distal end to contact a media sheet within the input tray;

10 a feed nip positioned downstream from the pick mechanism a distance less than a length of the media sheet, the feed nip having a drive roll and a driven roll;

a motor;

a first gear set extending between the motor and the pick mechanism to drive the pick roll at a first speed;

15 a second gear set extending between the motor and the drive roll to drive the drive roll at a second substantially equal to the first speed;

the second gear set comprising a swing arm pivotally positioned between a first orientation with a first gear contacting the drive roll, and a second orientation with a second gear contacting the drive roll.

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21 An input device for an image forming device comprising:

an input tray;

a pick mechanism having a pick arm extending into the input tray and a

5 pick roll positioned at a distal end to contact a media sheet within the input tray;

a feed nip positioned downstream from the pick mechanism a distance less than a length of the media sheet, the feed nip having a drive roll and a driven roll;

a motor;

10 a first gear set extending between the motor and the pick mechanism to drive the pick roll at a first speed;

a second gear set extending between the motor and the drive roll to drive the drive roll at a second speed greater than the first speed;

15 the second gear set comprising a swing arm pivotally positioned between a first orientation with a first gear contacting the drive roll, and a second orientation with a second gear contacting the drive roll.

22. The device of claim 21, further comprising a metering nip positioned

downstream from the feed nip that operates at a third speed greater than the

20 second speed, the feed nip having a clutch for the drive roll to rotate at the third speed when the media sheet is in contact with both the metering nip and the feed nip.

23. The device of claim 21, further comprising a clutch positioned within the pick

25 mechanism that allows the pick roll to rotate at the second speed when the media sheet is in contact with both the feed nip and the pick roll and the motor is operating at a first speed.

24. The device of claim 22, further comprising a clutch positioned within the feed

30 nip that allows the feed nip to rotate at the third speed when the media sheet is in contact with both the feed nip and the metering nip.

25. A method of moving a media sheet within an image forming apparatus comprising the steps of:

driving a motor in a first direction to rotate a first roller in a forward  
5 direction;

contacting the media sheet with the first roller and moving the media sheet  
along a first section of a media path;

driving the motor in the first direction to rotate a second roller in the  
forward direction;

10 contacting the media sheet with the second roller and moving the media  
sheet along a downstream section of the media path;

reversing the motor to a second direction and continue rotating the second  
roller in the forward direction; and

continuing contact of the media sheet with the second roller and moving  
15 the media sheet along the downstream section of the media path.

26. The method of claim 21, further comprising rotating the first roller in a  
forward direction and picking the media sheet from an input tray.

20 27. The method of claim 25, wherein the step of driving the motor in the first  
direction results in the first roller moving at a first speed and the second roller  
moving at a second speed different than the first speed with the motor operating  
at a constant rate.

25 28. The method of claim 25, further comprising rotating the second roller at a  
faster speed than the first roller and clutching the first roller to freely rotate at the  
faster speed when the media sheet is in simultaneous contact with the first roller  
and the second roller.

30 29. The method of claim 25, further comprising passing the media sheet from  
the second roller to a third roller with the third roller rotating at a faster speed

than the second roller and clutching the second roller to freely rotate when the media sheet is in simultaneous contact with the second roller and the third roller.

30. The method of claim 25, further comprising clutching the first roller to prevent  
5 backwards rotation when the motor is reversed to the second direction.

31. A method of moving a media sheet within an image forming apparatus comprising the steps of:

10 driving a motor at a first rate in a first direction to rotate a first roller in a forward direction and contacting the media sheet with the first roller to move the media sheet at a first speed along a first section of a media path;

15 driving the motor at the first rate in the first direction to rotate a second roller in the forward direction and contacting the media sheet with the second roller to move the media sheet at a second speed along a second section of the media path; and

reversing the motor to a second direction and continue rotating the second roller in the forward direction and contacting the media sheet with the second roller to move the media sheet along the second section of the media path.

20 32. The method of claim 31, further comprising moving the media sheet at a faster speed along the second section of the media path than along the first section of the media path.

25 33. The method of claim 31, further comprising rotating the motor at the first rate and moving the media sheet at substantially the same speed along the first section of the media path and at least a portion of the second section of the media path.



34. A method of moving a media sheet within an image forming apparatus comprising the steps of:

rotating a motor in a first direction and driving a first gear set to rotate a first roller in a first direction and driving a second gear set to rotate a second roller in the first direction;

contacting the media sheet with the first roller and moving the media sheet along a first upstream section of the media path;

rotating the motor in a second direction and driving the second gear set to rotate the second roller in the first direction; and

contacting the media sheet with the first roller and moving the media sheet along a second downstream section of the media path.

35. The method of claim 34, further comprising rotating the motor in the first direction and moving a media sheet with the first roller along the first upstream section and with the second roller along the second downstream section.

36. The method of claim 35, further comprising moving the media sheet at a faster speed along the second downstream section than along the first upstream section.

37. The method of claim 34, further comprising preventing the first roller from moving in the second direction when the motor is rotating in the second direction.

38. The method of claim 25, further comprising moving the media sheet at substantially the same speed along the first upstream section and the second downstream section.